

## INTERSTITIAL KERATITIS AFTER ADEQUATE PENICILLIN THERAPY\*

### A CASE REPORT

BY

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Soon after the introduction of antisyphilitic treatment by arsenic and heavy metals, it was noted that adequate antisyphilitic therapy could not prevent interstitial keratitis associated with congenital syphilis, but a difference of opinion arose whether the treatment could reduce it. In the extensive series by Cole, Usilton, Moore, O'Leary, Stokes, Wile, Parran, and Vonderlehr (1937), the incidence of interstitial keratitis among patients who had received adequate arsenic and heavy metal treatment was eighteen times less than in untreated persons and four times less than in those inadequately treated. In the opinion of these investigators, the value of antisyphilitic treatment was greater the earlier the treatment was begun. Further, the treatment was considerably more effective before the second year of age than after it.

It soon became evident that penicillin also was unable to prevent the onset of interstitial keratitis (Klauder, 1947; Forsyth, 1948; Ingraham, 1951). The first experiments with penicillin were confined to patients who had not received antisyphilitic treatment very promptly in late congenital syphilis, since interstitial keratitis usually first appears between the ages of 7 and 20 years. So far, only occasional cases have been published in which the onset of interstitial keratitis occurred in spite of early and adequate penicillin therapy. In Finland, penicillin for the treatment of congenital syphilis was introduced approximately 10 years ago. The following description is given of a patient who was among the first to receive penicillin treatment, yet later developed interstitial keratitis.

#### Case Report

A boy, aged 11 years, whose mother gave a history of good health during pregnancy, had been delivered normally at term and seemed perfectly healthy at birth. Later on, the mother had to be admitted to hospital because of an acute infection, and it was found that she had syphilis. A

blood sample was therefore taken from the boy, who, at the time, was 2 years old. This test revealed congenital syphilis in the child. The boy was at once given 4·5 million units penicillin, and this was repeated 6 months later. After one year, the patient was given penicillin for the third time, the dose being 6 million units. For the whole of this period, the patient was clinically perfectly healthy and his mental development was normal.

The patient's congenital syphilis only became clinically manifest years later, when interstitial keratitis developed in the right eye. In September, 1956, the patient's right eye became sensitive to light and reddened. He came to the out-patient department on November 8, 1956.

*Examination.*—Visual acuity in the right eye 6/60; in the left eye, with +0·5 D cyl., axis 180°, 6/6. A slight ciliary injection, +1 was visible in the right eye; the right cornea was very oedematous in the centre, where infiltrates and keratic precipitates were also present; there were slight aqueous opacities, +1; the iris was somewhat hyperaemic, +1, and the fundus could not be distinguished. The left eye was asymptomatic, and the left fundus did not show any syphilitic changes.

The general condition of the patient was good. Apart from the eye disease, there were no noteworthy clinical findings. Interstitial keratitis was the only stigma of congenital syphilis. The blood Wassermann reaction was negative; cholWaR, negative; Kahn test, negative; and Sitolipin, positive. The cerebrospinal fluid did not reveal any pathological changes.

The right eye was treated with 1 per cent. atropine and 2·5 per cent. hydrocortisone drops. The atropine was applied three times daily and hydrocortisone at first every hour; later, with the improvement of the symptoms, they were applied at longer intervals. After 2 weeks of treatment, the right cornea became transparent, with the exception of a slight opacity of Descemet's membrane. Oedema had disappeared and no syphilitic changes were visible in the right fundus. Atropine was now stopped but hydrocortisone drops three times daily were continued for another month, during which time the right eye was clinically free from symptoms. At the last examination, the visual acuity in the right eye was 6/12, emmetropic. A slight opacity of Descemet's membrane caused impairment of vision. The right eye has now continued asymptomatic for an observation time of 1 month.

\* Received for publication February 1, 1957.

### Discussion

The patient described above received adequate penicillin therapy for asymptomatic congenital syphilis at the age of 2 years. He was clinically healthy until the onset of interstitial keratitis in the right eye at the age of 11 years. The eye disease was fairly mild, perhaps because he sought medical help only 2 months after the onset.

The eye showed only slight ciliary congestion. Although oedema, infiltrates, and precipitates were present in the cornea, there was no corneal vascularization. The interstitial keratitis was mild also in so far as local atropine and hydrocortisone therapy quickly eliminated the symptoms. On account of recurrences frequently associated with the cortisone and hydrocortisone therapy, nothing can be said as yet about final improvement. It is, moreover, impossible to say, on the basis of a single case, whether the penicillin therapy, given at such an early age, had contributed to the shorter than usual course of the disease.

The final significance of local cortisone and hydrocortisone therapy for interstitial keratitis still awaits definite clarification. After initial optimism, which in several cases was based on too short a time of observation, several investigators, *e.g.* Woods (1951), Ashworth (1953), Klauder and Meyer (1954), as well as Oksala (1953, 1957), noted that relapses were apt to occur, particularly after cortisone treatment, and necessitated continuing the treatment for several months. In spite of these difficulties, Oksala (1957), North (1954), and Horne (1955) obtained good results, the observation time being from 1 to 3 years. Cortisone and hydrocortisone are obviously not specific drugs in interstitial keratitis, nor can all cases be controlled by them alone. Since, however, previous modes of therapy achieved a visual acuity of 6/18 or less in about 20 per cent. of the eyes, I feel it is worthwhile trying these drugs first in every case.

In the treatment of interstitial keratitis in our ward, we have recently changed to local hydrocortisone therapy alone, omitting the mydriatics

entirely or at an early stage. Only in severe cases is initial treatment now a combination of mydriatic and hydrocortisone therapy. In the first place, the sensitive reaction of the disease to hydrocortisone makes it possible to discard mydriatics in interstitial keratitis without impairing treatment. Secondly, iridocyclitis, associated with the disease and mainly serous in character, does not generally produce posterior synechiae. Further, there is a lesser formation of goniosynechiae, and lastly, during a treatment of several months' duration, there is the benefit of being able to increase the working ability of the patient, simultaneously reducing the psychological difficulties associated with the treatment and the disease. Goniosynechiae may possess some significance in relation to the recurrence of the disease, a circumstance to which no attention has been attached so far, and on which I am at present doing some research work.

### Summary

A patient is described who, when 2 years old, was one of the first in Finland to receive adequate penicillin treatment for asymptomatic congenital syphilis. The disease first became manifest clinically when, at the age of 11 years, interstitial keratitis developed. The keratitis was milder than usual and rapidly cleared up with local hydrocortisone therapy.

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